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UNITED STATES DEPARTMENT OF AGRICULTURE
FLOOD CONTROL COORDINATING COMMITTEE
Washington

September 18, 1939

MEMORANDUM NO. 50

MEMORANDUM FOR FIELD FLOOD CONTROL COORDINATING COMMITTEES:
(Through B.A.E., F.S., and S.C.S.)

Subject: Bureau of Reclamation Investigations in
Relation to Multiple-purpose Projects.

1. Reference is made to the recent joint agreement signed by the Chief of Engineers, the Commissioner of the Bureau of Reclamation, and the Acting Chief of the Bureau of Agricultural Economics, entitled "Procedure to Insure Cooperation in the Preparation of Reports on Multiple Purpose Projects". A copy of this agreement has been sent you.

2. There is attached a list of investigations which are now in progress by the Bureau of Reclamation, together with a statement of their status. This list is furnished in order that you may be informed of the relationship of any such projects to the Department's flood control program under the Flood Control Act of 1936 and subsequent acts.

FLOOD CONTROL COORDINATING COMMITTEE

By Arthur C. Ringland
Arthur C. Ringland, Chairman

Attachment

July 31, 1939

BUREAU OF RECLAMATION

IMPENDING WATER-RESOURCES INVESTIGATIONS AND CONSTRUCTION PROJECTS

(1)	(2)	(3)	(4)
	Appropriation or cost:		Status - Remarks
Project Location and Description: (Show name of city, town, or county, and name of stream, and describe fully the character of work)	(Show amount for current fiscal year and total amount)	Basin Number	(If practicable, show authority, probable duration and number of persons to be employed, source of expenditures, and purpose)
1. Investigations.			
<u>Irrigation</u>			
Marias, Mont., Toole, Liberty, Hill, and Chouteau Counties: To determine the feasibility of irrigating lands along the Marias River.	2/ 25,000	66	Report completed. Allocations from Interior Dept. Appro. Acts 1938 and 1939 for Investigations
Gallatin Valley, Mont., Gallatin County: To determine the feasibility of furnishing supplemental water to about 90,000 acres near Bozeman.	2/ 41,000	66	Preliminary water supply studies and reservoir surveys completed. Additional water supply studies in progress. Preliminary report being revised. Allocations from E.R.A. allotment and Int. Dept. Appro. F.Y. 1939 for investigations.
Madison River, Mont., Madison County, Mont. and Fremont County, Idaho: To determine the feasibility of diverting Madison River water at Hebgen reservoir to Henry's Fork of Snake River for furnishing irrigation supply to lands in Madison Valley.	1/ 5,000 2/ 20,000	66	Preliminary report on diversion completed. Land classification and reservoir surveys in Madison Valley practically completed. Water supply studies in progress. Allocation from E.R.A. allotment for investigations.

1/ Interior Department Appropriation Act, F.Y. 1940
2/ Total appropriation or allotments.

Rock Creek, Mont., Valley County:		66	Field work completed. Water
To determine feasibility of			supply studies in progress.
supplemental water supply of			Allocation from Int. Dept.
lands along the Rock Creek			Appro. F.Y. 1939 for
with possible incidental flood			Investigations.
control in cooperation with			
Army Engineers.			
	2/ 10,000		
Ft. Peck Pumping, Mont., and		66	Land classification, canal
North Dakota, various counties			surveys, water supply studie
To determine the feasibility			transmission line surveys an
of irrigating lands along the			economic studies in progress
Missouri River below Ft. Peck	1/ 15,000		Allocations from Inter. Dept.
reservoir to the vicinity of			Appro. F.Y. 1939 and 1940
Bismarck, N.D., including			for investigations.
potential areas in vicinity of			
Circle and Sun Prairie, Mont.			
Survey of power market trib-			
utary to Ft. Peck power plant.			
	2/ 55,000		
Canyon Ferry, Mont., Lewis and		66	Topographic and geologic
Clarke Counties: Replacement	1/ 15,000		surveys started in connection
storage to facilitate upstream	2/ 15,000		with Gallatin and Madison
development.			River investigations listed
			above.
Daley Spur, Mont., various		66	Work will be started early
counties: To determine			in the fiscal year 1940.
storage possibilities on			
Beaver Head River for supple-	1/ 10,000		
menting the water supply of			
lands in the vicinity of	2/ 10,000		
Dillon.			
Yellowstone Basin, Mont. and		67	Surveys have been started in
Wyoming, various counties: To	1/ 20,000		the Big Horn Basin which is
determine irrigation and			tributary to the Yellowstone.
storage possibilities in basin			
exclusive of Yellowstone Park.	2/ 20,000		

1/ Interior Department Appropriation Act, F.Y.- 1940
2/ Total appropriation or allotments.

Big Horn River, Wyoming, various:	:	67	:	Land classification, reser-
counties: To determine feasible:	1/ 20,000	:	:	voir surveys and water
irrigation developments within	:	:	:	supply studies in progress.
the Big Horn Basin.	2/ 40,000	:	:	Will form a part of the
:	:	:	:	comprehensive surveys of
:	:	:	:	the Yellowstone Basin.
:	:	:	:	Allocation from Inter.
:	:	:	:	Dept. Appro. 1939 and 1940
:	:	:	:	for investigations.
:	:	:	:	:
Powder and Tongue Rivers, Wyo.	:	67	:	Land classification, reser-
Various counties: Determination:	:	:	:	voir surveys and water
of possible irrigation and	1/ 5,000	:	:	supply studies in progress.
storage developments in the	:	:	:	Will form a part of the
Powder and Tongue River Basins	2/ 13,000	:	:	comprehensive surveys of
:	:	:	:	the Yellowstone Basin.
:	:	:	:	Allocation from Inter.
:	:	:	:	Dept. Appro. 1939 and 1940
:	:	:	:	for investigations.
:	:	:	:	:
Missouri River tributaries,	:	68	:	Field surveys are in progress.
North Dakota, various counties	:	:	:	Allocation from Inter. Dept.
To determine most desirable	:	:	:	Appro. 1939 and 1940 for
projects in Knife, Little	1/ 10,000	:	:	investigations.
Beaver, and other tributary	:	:	:	:
basins of the Missouri River.	2/ 25,000	:	:	:
:	:	:	:	:
Missouri River pumping, North	:	68	:	Field surveys have been
Dakota, various counties: To	:	and	:	started. Allocations from
determine the feasibility of	:	71	:	Inter. Dept. Appro. 1939
irrigating lands along the	1/ 25,000	:	:	and 1940 for investigations.
Missouri River between the	:	:	:	:
Mont.-N.D.- S.D. State lines.	2/ 35,000	:	:	:
:	:	:	:	:
:	:	:	:	:
Missouri River pumping, South	:	68	:	Field surveys are in progress,
Dakota, various counties:	:	and	:	Allocations from Inter. Dept.
To determine the feasibility	1/ 10,000	71	:	Appro. 1939 and 1940 for
of irrigating lands along the	:	:	:	investigations.
Missouri River between the	:	:	:	:
Mont. N.D.- S.D.- Nebr. State	:	:	:	:
lines.	2/ 15,000	:	:	:
:	:	:	:	:
:	:	:	:	:
Shade Hill, S.D., Perkins and	:	68	:	Preliminary report submitted.
Corson counties: Determination	:	:	:	Final report awaiting addi-
of suitability of water	:	:	:	tional information.

supply of Grand River for	:	:	:	Allocation from Inter. Dept.
irrigation development. Addi-	:	:	:	Appro. 1939 for investigation.
tional land studies in connec-	:	:	:	
tion with Shade Hill storage	:	:	:	
	:2/	1,000	:	
	:	:	:	
Miscellaneous, North Dakota	:	:	68	
various counties: Additional	:	:	:	
reconnaissance surveys to	:1/	5,000	:	
determine irrigation	:	:	:	
potentialities in the State	:	:	:	
	:2/	5,000	:	
	:	:	:	
Miscellaneous, South Dakota,	:	:	68, 69,	
various counties: Additional	:	:	and 70	
reconnaissance surveys to	:1/	15,000	:	
determine irrigation	:	:	:	
potentialities in the State	:	:	:	
	:2/	15,000	:	
	:	:	:	
Black Hills, South Dakota,	:	:	69	
various counties: This	:	:	:	A report on the Rapid Valley
continuing investigation has	:	:	:	project has been completed.
or will include studies of	:1/	5,000	:	A preliminary report on the
the Rapid Valley project, the	:	:	:	Angostura project has been
Angostura project, the	:	:	:	completed and a supplemental
Buffalo Gap or Beaver Creek	:	:	:	report is in progress. Some
project and the Belle	:	:	:	preliminary work has been
Fourche supplemental storage	:	:	:	done in connection with the
project.	:	:	:	Belle Fourche supplemental
	:2/	35,000	:	storage project. Field work
	:	:	:	for the Buffalo Gap or Beaver
	:	:	:	Creek project has been
	:	:	:	completed. Water supply
	:	:	:	studies are in progress.
	:	:	:	Allocations from E.R.A.
	:	:	:	allotment and Inter. Dept.
	:	:	:	Approp. 1940 for investigation
	:	:	:	
Miscellaneous, Wyoming, various	:	:	69 and	
counties: Reconnaissance of	:1/	5,000	72	
areas not covered by other	:	:	:	
specified investigations.	:2/	5,000	:	

1/ Interior Department Appropriation Act, F.Y. - 1940
 2/ Total Appropriation or Allotments.

Mirage Flats, Nebraska, Dawes and Sheridan Counties: To determine the feasibility of irrigation along the river site of Hay Springs, Nebraska	:	:	70	:	Field work and water supply studies completed. Struc- tural designs and report are in preparation.
:2/ 10,000	:	:	:	:	Allocation from Inter.Dept. Appro. 1939 for investiga- tions.
Miscellaneous, Nebraska, various counties: Reconnaissance of projects not otherwise specifically mentioned.	:	:	70, 72, and 73	:	:
:1/ 10,000	:	:	:	:	:
:2/ 10,000	:	:	:	:	:
Blue River-South Platte River diversion, Colorado, various counties: To determine the feasibility of diverting water from Blue River (Colorado drainage) to South Platte River (Platte drainage) to supplement irrigation and domestic supplies in the vicinity of Denver, Colorado.	:	:	72 and 102	:	Report is in preparation. P. W. A. Allotment and allocation from Inter. Dept. Appro. 1938 for investigations.
:2/ 195,000	:	:	:	:	:
Horse Creek Reservoir, Wyoming, Goshen County: To determine the feasibility of supplemental storage and regulation for the Fort Laramie Division of the North Platte project at the Horse Creek reservoir site.	:	:	72	:	:
:1/ 5,000	:	:	:	:	:
:2/ 5,000	:	:	:	:	:
Miscellaneous, Kansas, various counties: Reconnaissance to determine feasible irrigation development in Western Kansas	:	:	73, 78 and 80	:	Reconnaissance of area has recently been started.
:1/ 5,000	:	:	:	:	:
:2/ 5,000	:	:	:	:	:
Eastern Slope, Colorado, various counties: This investigation includes studies of the North Republican, Arikaree, South Republican, and Smoky Hill	:	:	73	:	Reports on the 4 sub-basins should be completed by the end of the calendar year 1939. P. W. A. allotment and

1/ Interior Department Appropriation Act, F.Y. - 1940
2/ Total Appropriation or Allotments.

Rivers in Colorado. To deter-	:	:	:	allocation from E. R. A.
mine the feasibility of	:	:	:	allotment for investigations.
irrigation and flood control	:	:	:	:
or combined development.	:	:	:	:
	:2/	24,000	:	:
Eastern Slope Surveys, Colorado:	:	:	78	The report on the Big Sandy
various counties: This	:	:	:	Creek area has been completed
investigation includes studies:	:	:	:	It is expected that reports
of the Huerfano, Purgatoire,	:	:	:	on the other areas will be
and Apishapa Rivers and Big	:	:	:	available during the fiscal
Sandy Creek in Colorado.	:	:	:	year 1940. P.W.A. allotment
	:2/	35,000	:	and allocation from E. R.A.
	:	:	:	allotment for investigations.
Arkansas Valley, Colorado and	:	:	78	Aerial mapping, land
Kansas, various counties:	:	:	:	classification, and water
Determination of area that	:	:	:	supply studies are in
may be benefited through the	:1/	25,000	:	progress. During the fiscal
construction of the Caddoa	:	:	:	year 1939, this work was
reservoir and potential	:	:	:	carried on as a part of the
irrigation areas in the main	:	:	:	Eastern slope surveys.
Arkansas Valley above that	:	:	:	Allocations to eastern Slope
reservoir site.	:	:	:	surveys and allocation from
	:2/	48,000	:	Inter. Dept. Appro. 1940 for
	:	:	:	investigations.
Kenton, Oklahoma, Cimarron	:	:	80	Preliminary report has been
County: Determination of the	:	:	:	completed. Final report
feasibility of irrigating	:	:	:	awaits additional informa-
lands adjacent to the Cimar-	:	:	:	tion regarding water supply.
ron River.	:	:	:	Allocation from Inter. Dept.
	:2/	35,000	:	Appro. 1938 for investigation
Cimarron, Oklahoma and Kansas,	:	:	80	:
various counties: Recon-	:	:	:	:
naissance to determine	:	:	:	:
irrigation potentialities of	:1/	5,000	:	:
the basin will include	:	:	:	:
studies of an area in the	:	:	:	:
vicinity of Englewood, Kansas	:	:	:	:
	:2/	5,000	:	:

1/ Interior Department Appropriation Act, F.Y. -1940.

2/ Total Appropriation or Allotments.

The North Canadian River, Oklahoma, various counties: Determination of the feasibility of irrigating lands below the Ft. Supply reservoir now under construction by the Army Engineers and below the Optima and Canton reservoir sites, both of which have at one time been authorized for construction by the Army Engineers.

Palo Duro, Texas and Oklahoma,-
various counties : Reconnaissance survey to determine potential irrigation development within the basin.

Altus, Oklahoma, Jackson
County: Study to determine
value of flood control and
resettlement features of the
project.

1/ Interior Department Appropriation Act, F. Y. - 1940.
2/ Total Appropriation or Allotments.

Mangum, Oklahoma, Greer County	:	:	85	:	A reconnaissance report
Determination of the feasibility of utilizing the Salt Fork of the Red River for irrigation in the vicinity of Mangum, Oklahoma.	:1/	10,000	:	:	covering this area has already been completed.
	:	:	:	:	The present investigation will probably be made in cooperation with the Corps of Engineers.
	:2/	10,000	:	:	
Cache and Beaver, Oklahoma, various counties: Reconnaissance and surveys to determine the feasibility of irrigation development.	:1/	10,000	:	85	Reconnaissance and surveys of Cache and Beaver Creeks will probably be made in cooperation with the Army Engineers.
	:2/	10,000	:	:	
Pease River and Cap Rock, Texas, various counties: To determine the feasibility of irrigation projects along the Pease River and Prairie Dogtown Fork of the Red River.	:1/	10,000	:	85	Reconnaissance surveys of these two areas have been completed. Further surveys will probably be undertaken in cooperation with the Army Engineers.
	:2/	10,000	:	:	
Washita River, Oklahoma, various counties: Determination of the feasibility of irrigation development in the Washita basin.	:	:	:	86	Reconnaissance has been completed. Further surveys will probably be made in cooperation with the Corps of Engineers.
	:2/	10,000	:	:	Allocation Inter. Dept. Appro. 1939 for investigations.
Miscellaneous, Texas, Various Counties: Reconnaissance of areas not specifically mentioned.	:1/	5,000	:	81,85	
	:2/	5,000	:	97 and 100	
Robert Lee-San Angelo, Texas, Coke, Runnels, and Tom Green Counties: Determination of potential irrigation development of the Colorado River near Robert Lee and Concho River near San Angelo, Texas, sometimes referred to as the Upper Colorado River Authority Projects.	:1/	30,000	:	97	Field surveys including stream measurements are in progress. Allocations from Inter. Dep. Appro. 1939 and 1940 for investigations.
	:2/	40,000	:	:	

Balmorhea, Texas, Reeves County:	:	100	:	Field surveys and stream
Determination of the feasibility:	:	:	:	measurements are in pro-
of augmenting the water supply	:1/ 10,000	:	:	gress. Allocations from
of the Reeves County Water	:	:	:	Inter. Dept. Appro. 1939
Measurement District No. 1.	:2/ 20,000	:	:	and 1940 for investigations.
	:	:	:	
Pecos River, New Mexico and	:	100	:	The work in connection
Texas, various counties:	:1/ 15,000	:	:	with this investigation
Determination of the uses of the:	:	:	:	will be done in coopera-
water supply of the basin.	:2/ 15,000	:	:	tion with the National
	:	:	:	Resources Planning Board.
	:	:	:	
Middle Rio Grande, New Mexico,	:	101	:	The investigation will be
various counties: Investiga-	:	:	:	made in cooperation with
tion of water supply, economics,	:1/ 10,000	:	:	the Rio Grande Depart-
and existing physical develop-	:	:	:	mental Board.
ment of the Middle Rio Grande	:	:	:	
Conservancy District.	:2/ 10,000	:	:	
	:	:	:	
Miscellaneous, Colorado, various	:	101, 102	:	The studies will include
counties: Reconnaissance	:	& 72	:	a review of the existing
surveys and water supply studies:	:1/ 10,000	:	:	reports on the San Luis
of areas not specifically	:	:	:	Valley. A reconnaissance
designated as projects.	:2/ 10,000	:	:	of water conditions in the
	:	:	:	So. Platte Valley and for
	:	:	:	the Dolores Montezuma
	:	:	:	project.
	:	:	:	
Colorado River Basin, Arizona,	:	102 &	:	Authorized by Boulder
Calif., Colo., Nev., Utah, N.M.:	:	103	:	Canyon Project Act approved
and Wyo., various counties:	:	:	:	Dec. 21, 1928. Land
Comprehensive surveys and studies:	:	:	:	classification surveys
to determine feasibility of	:	:	:	within the basin have been
projects for irrigation, genera-	:	:	:	practically completed.
tion of electric power, and other:	:	:	:	Reservoir surveys have been
purposes. Surveys now under way	:	:	:	completed in some areas and
in the following tributary	:	:	:	are in progress in others.
basins:	:	:	:	Canal surveys, economic
Western Slope - Colorado	:	:	:	and water supply studies
Green River, Wyoming;	:	:	:	are in progress for in-
Green River, Utah;	:	:	:	dividual projects within
Little Snake River, Colo. & Wyo.;	:	:	:	the several areas
San Juan River, Colo. & N.M.;	:	:	:	
Virgin River, Utah, Ariz. & Nev.;	:	:	:	
Colorado River, Colo. (See	:2/ 635,000	:	:	
Western Slope Division);	:	:	:	
Colorado River, Ariz., Colo. &	:	:	:	
Utah.	:	:	:	

1/ Interior Department Appropriation Act, F.Y. 1940
2/ Total appropriation or allotments.

Western Slope surveys, Colo.,	:	:	102	:	Authorized by Boulder
various counties: Determination	:	:	:	:	Canyon Project Act, and
of the feasibility of irrigation	:	:	:	:	P.W.A. Reports have been
and incidental power developments	:	:	:	:	completed for Mancos,
in the following areas:	:	:	:	:	Yampa, and West Divide.
<u>Project</u> <u>County</u> <u>Near</u>	:	:	:	:	A preliminary report on
Mancos Montezuma Mancos	:	:	:	:	Paonia area has been com-
Florida	:	:	:	:	pleted. Field surveys
Paonia Delta Paonia	:	:	:	:	on most of the other areas
Silt Garfield Silt	:	:	:	:	have been completed and
Roan Creek Garfield DeBeque	:	:	:	:	water supply studies are
Yampa Routt Yampa	:	:	:	:	in progress. P.W.A.
Troublesome Grand Kremmling	:	:	:	:	allotment and allocation
Piceance Rio Blanco Meeker	:	:	:	:	from E. R. A. allotment
Colburn Mesa Colburn	:	:	:	:	for investigations.
Rifle Garfield Rifle	:	:	:	:	
West Divide Mesa Silt	:	:	:	:	
LaPlata LaPlata Durango	:	:	:2/ 158,000	:	
La Plata, Colo., La Plata County:	:	:	102	:	Report on potential
Complete report on project sur-	:	:	:	:	storage development in
vey started with Western Slope	:	:	:1/ 2,000	:	preparation.
funds.	:	:	:2/ 2,000	:	
Troublesome, Colo., Grand County:	:	:	102	:	
Continue surveys and report	:	:	:1/ 5,000	:	
commenced with Western Slope	:	:	:2/ 5,000	:	
funds.	:	:		:	
Silt, Colo., Garfield Co.:Complete:	:	:	102	:	
report on project. Investigation	:	:	:1/ 3,000	:	
began with Western Slope funds.	:	:	:2/ 3,000	:	
Montrose Power, Colo., Montrose	:	:	102	:	
County: Determine feasibility	:	:	:1/ 15,000	:	
of developing power for Uncom-	:	:	:2/ 15,000	:	
pahgre project and adjacent area.	:	:		:	
Grand Mesa, Colo., Delta County:	:	:	102	:	
Determine Feasibility of storage	:	:	:1/ 10,000	:	
development on both sides of	:	:	:2/ 10,000	:	
Grand Mesa.	:	:		:	

1/ Interior Department Appropriation Act, F.Y. 1940
2/ Total appropriation or allotments.

Yampa, Colo., Moffat and Routt Counties: Determine feasible storage on Yampa River below Yampa, Colorado.	: :1/ 5,000 : :2/ 5,000 :	: 102 : : : : :	: : : : :
Lyman, Wyo., Uintah County: To determine the feasibility of furnishing supplemental water to lands now irrigated in the vicinity of Lyman and additional development in adjacent areas.	: : : : 10,000 : : :	: 102 : : : : : :	: Involves storage at Willow Creek or other reservoir site in the Black Fork watershed. Field surveys and water supply studies in progress. Continuation of studies started with Colorado Basin Survey funds.
Pinedale, Wyo., Sublette and Sweetwater Counties: To determine the feasibility of furnishing water supply to lands now irrigated and to additional areas in the vicinity of Pinedale and Eden.	: : : 15,000 : : :	: 102 : : : : : :	: Preliminary surveys are complete. Additional field work is in progress. Continuation of surveys began with Colorado Basin Survey funds.
Seedskadie, Wyo., Sweetwater County: To determine the feasibility of additional irrigation development along the Green River above Green River, Wyoming.	: :1/ 8,000 : :2/ 8,000 :	: 102 : : : : :	: Field surveys in progress. Continuation of work started with Colorado Basin Survey funds.
Henry Fork, Utah and Wyo., various counties: To determine the feasibility of augmenting water supply of lands in the Henry Fork watershed.	: :1/ 15,000 : :2/ 15,000 :	: 102 : : : : :	: Continuation of work started with Colorado Basin Survey funds.
Baggs (Little Snake River) Wyo., and Colo., Various Counties: Storage and irrigation along Little Snake River	: :1/ 10,000 : :2/ 10,000 :	: 102 : : : : :	: Continuation of surveys started with Colorado Basin Survey funds.
Green River-Bear River diversion, Idaho, Utah, and Wyo., various counties: To determine the feasibility of diverting water from Green River to the Bear River basin for irrigation purposes.	: : :1/ 30,000 : :2/ 110,000 :	: 102 & : 104 a : : : :	: Several canal surveys have been completed. Reservoir surveys and water supply studies are in progress. The investigation includes a comprehensive study of

	:	:	:	irrigation possibilities
	:	:	:	in the Bear River basin.
	:	:	:	Allocation from Inter.
	:	:	:	Dept. Appro. 1938 and
	:	:	:	1940 and an allocation
	:	:	:	from interested States.
Duchesne-Sevier, Utah, various	:	:	:	
counties: (Colorado River Great	:	:	102 &	Authorized by the Boulder
Basin Diversion) To determine the	:	:	104 a:	Canyon Project Act and
feasibility of diverting water from	:	:	:	the Reclamation Act.
Colorado River to land areas in the	:	:	:	Investigation will be
Colorado basin for irrigation and	1/	30,000	:	undertaken in cooperation
incidental power development.	2/	60,000	:	with Utah State interests
	:	:	:	Allocation from Inter.
	:	:	:	Dept. Appro. 1940 and
	:	:	:	allocation from State
	:	:	:	interests.
Virgin River and other Western	1/	10,000	102	Continuation of work
tributaries of Colorado, Utah,	2/	10,000	:	started with Colorado
Nevada and Arizona	:	:	:	River Survey funds.
Power Developments, Colorado River,	:	:	:	
Utah, Various counties: Investi-	:	:	102	Authorized by Boulder
gation of various reservoir sites	:	:	:	Canyon Project Act.
for power and flood control	1/	20,000	:	Continuation of investi-
development. Also power market	2/	20,000	:	gation started with
survey.	:	:	:	Colorado River Survey
	:	:	:	funds.
Turley, New Mexico, San Juan	:	:	:	
County: Irrigation possibilities	1/	15,000	102	
from San Juan River near Turley,	2/	15,000	:	
N.M.	:	:	:	
Shiprock, New Mexico, San Juan	:	:	:	
County: Irrigation possibilities	1/	15,000	102	
from San Juan River near Shiprock,	2/	15,000	:	
N.M.	:	:	:	
Miscellaneous, New Mexico, Various	1/	10,000	102	
Counties: Reconnaissance of	2/	10,000	:	
areas not specifically mentioned.	:	:	:	
Williams River, Ariz., Mohave,	:	:	:	
Yuma, and Yavapai Counties: To	:	:	103	Land classification sur-
determine feasibility of storage	1/	20,000	:	veys complete. Other
	:	:	:	field surveys and water

1/ Interior Department Appropriation Act, F.Y. 1940
 2/ Total appropriation or allotments.

and irrigation development in the basin of the Williams River.	: <u>2/</u> 20,000 :	: supply studies are in progress. Continuation of work begun with Colorado River Survey funds.
	: :	: :
	: :	: :
Bullshead Reservoir, Ariz. and Nev., various counties: To determine the feasibility of dam site and reservoir for power development and river re-regulation.	: <u>1/</u> 25,000 : : <u>2/</u> 25,000 :	: 103 : Topographical surveys and geological explorations are in progress. Continuation of work started with Colorado River Survey funds.
	: :	: :
Little Colorado, Ariz., various counties: To determine the feasibility of additional irrigation development or the possibility of supplementing the water supply of existing developments within the Little Colorado basin, includes the Showlow area.	: <u>1/</u> 15,000 : : <u>2/</u> 15,000 :	: 103 : Land classification has been completed. Other surveys are in progress. Continuation of work started with Colorado River Survey funds.
	: :	: :
Hassiyampa, Ariz., Yavapai and Maricopa Counties: To determine the feasibility of irrigating lands in the vicinity of Wickenburg and Wittmann.	: <u>1/</u> 15,000 : : <u>2/</u> 15,000 :	: 103 : Land classification surveys completed. Field surveys and water supply studies are in progress. Continuation of work begun with Colorado River Survey funds.
	: :	: :
Miscellaneous, Arizona, Various Counties: Reconnaissances not specifically mentioned.	: <u>1/</u> 5,000 : : <u>2/</u> 5,000 :	: 103 : :
	: :	: :
Chucawalla, Calif., Riverside County: To determine the feasibility of irrigating Chucawalla Valley from the Colorado River.	: 5,000 :	: 103 : Land classification surveys have been started.
	: :	: :
	: :	: :
	: :	: :

Utah-Salt Lake Basin Co-	:	:	:	Authorized by Reclamation
operative Surveys. Utah,	:	:	:	Act and its amendments and
various counties: The	:	:	:	by cooperative contracts
current program of co-	:	:	:	between the Bureau of
operative surveys of potential	:	:	:	Reclamation and the State
irrigation projects in Utah	:	:	:	of Utah.
include Ouray Valley project	:	102	:	
Blue Bench project	:	:	:	
Price-Gooseberry project	:	:	and	Allocations from Interior
Vernal project	:	:	:	Department Appropriation,
Wolver River project	:	104a	:	1938, 1939 and 1940 and
Woodruff project	:	:	:	allocations from the
Newton project	:	:	:	State and the latter
Big Creek project	:	:	:	being 50 per cent of cost
Otter Creek project	:1/	25,000	:	of the investigations.
Beaver Creek project	:	:	:	
Short descriptions of the	:	:	:	
above projects are given	:	:	:	
below:	:2/	70,000	:	
Ouray Valley, Utah, Uintah	:	:	:	
County:	:	102	:	This investigation is
To determine the feasi-	:	:	:	being made in cooperation
bility of furnishing	:	:	:	with the State of Utah.
supplemental water supply	:	:	:	A report will probably be
to lands in the vicinity of	:	:	:	available in December
Ouray.	:	:	:	1939.
Vernal, Utah, Uintah County:	:	:	:	
To determine the feasi-	:	102	:	Land classification complet
bility of supplying sup-	:	:	:	Reservoir surveys in pro-
plemental water to lands	:	:	:	gress.
in the vicinity of Vernal,	:	:	:	
Utah.	:	:	:	
Price-Gooseberry, Utah,	:	:	:	
Carbon and Sanpete Counties:	:	102	:	This investigation is
To determine the feasi-	:	:	and	being made in cooperation
bility of rehabilitating	:	104a	:	with the State of Utah.
storage on the Price	:	:	:	Report may be available
River creating storage on	:	:	:	about October 1, 1939
Gooseberry Creek and diver-	:	:	:	
sion to land in the vicinity	:	:	:	
of Mt. Pleasant, Utah.	:	:	:	

1/ Interior Department Appropriation Act, F.Y. 1940
2/ Total appropriation or allotments.

Blue Bench, Utah, Duchesne County: To determine feasibility of furnishing supplemental water supply to lands along the Rock Creek and Duchesne River	:	:	102	:	This investigation is being made in cooperation with the State of Utah. Field Surveys have been completed. Report is in preparation.
Newton, Utah, Rich County: To determine the feasibility of furnishing supplemental water to lands along Newton Creek	:	:	104a	:	Field surveys in progress.
Woodruff, Utah, Rich County: To determine the feasibility of supplementing water supply of lands along Woodruff Creek.	:	:	104a	:	Field work in progress.
Big Creek, Utah, Rich County: To determine the feasibility of augmenting water supply of lands along Big Creek.	:	:	104a	:	
Otter Creek, Utah, Rich County: To determine the feasibility of furnishing supplemental water to lands along Otter Creek.	:	:	104a	:	
Beaver Creek, Utah, Cache County: To determine the feasibility of augmenting water supply to lands along Beaver Creek, a tributary of Logan River:	:	:	104a	:	
Weber River, Utah, Morgan, Davis, & Weber Counties: To determine the feasibility of furnishing supplemental water supply for irrigation development.	:	:	104a	:	Field work has been completed. Report is in preparation.

Washoe, Calif. and Nev., various	:	:	104b	:	This investigation may
counties: To determine the	:	:	:	:	be undertaken cooper-
feasibility of additional	:	:	:	:	atively with the Corps
irrigation and incidental	:	:	:	:	of Engineers.
power development in the Truckee	:1/	20,000	:	:	
and Carson watersheds.	:	:	:	:	
	:2/	20,000	:	:	
	:	:	:	:	
Miscellaneous, Nevada, various	:	:	104b	:	A preliminary reconnais-
counties: To determine the	:	:	:	:	ance has been made.
possibility of irrigation	:1/	5,000	:	:	
development in Quinn and	:	:	:	:	
Little Humboldt Valleys.	:2/	5,000	:	:	
	:	:	:	:	
Chewaucan, Oregon, Lake County:	:	:	104b	:	a preliminary reconnais-
To determine the feasibility	:	:	:	:	ance has been made.
of irrigation development	:	:	:	:	
near Paisley and the possi-	:	:	:	:	
bility of land reclamation	:1/	15,000	:	:	
by drainage adjacent to	:	:	:	:	
Chewaucan Lake.	:2/	15,000	:	:	
	:	:	:	:	
Kings River, Calif., various	:	:	106	:	Preliminary draft of
counties: Determination of	:	:	:	:	report completed.
the feasibility of develop-	:	:	:	:	
ing Pine Flat or other	:	:	:	:	P.W.A. Allotment.
reservoir sites for irrigation	:	:	:	:	
and flood control.	:2/	35,000	:	:	
	:	:	:	:	
Sacramento Valley-Scotts Valley,	:	:	106	:	
various counties: Determination	:	:	:	:	
of the area within the Sacra-	:	:	:	:	
mento Valley to be furnished	:1/	20,000	:	:	
with water from Shasta storage	:	:	:	:	
and the feasibility of	:	:	:	:	
irrigating land in Scotts	:2/	20,000	:	:	
Valley.	:	:	:	:	
	:	:	:	:	
Miscellaneous, California,	:	:	105	:	
various counties:	:1/	5,000	:	:	
Reconnaissance of areas not	:	:	and	:	
specifically mentioned.	:	:	106	:	
	:	:	:	:	
	:2/	5,000	:	:	
	:	:	:	:	

1/ Interior Department Appropriation Act, F.Y. 1940
 2/ Total Appropriation or Allotments.

[illegible]

1/ Interior Department Appropriation Act F.Y. 1940
2/ Total Appropriation or Allotments.

Grand Ronde, Oregon, Union	:	:	110	:	The major portion of the
County: To determine the	:	:	:	:	field work, land classifi-
feasibility of furnishing	:	:	:	:	cation, and water supply
supplemental water to lands	:1/	5,000	:	:	studies have been complete
near La Grande, Oregon, and	:	:	:	:	Economic and flood damage
to provide flood protection	:	:	:	:	studies are in progress.
for that city.	:2/	83,000	:	:	Report will be available
	:	:	:	:	some time in October 1939.
	:	:	:	:	Allocations from E.R.A.
	:	:	:	:	and P.W.A. Allotments and
	:	:	:	:	Interior Dept. Appropriat-
	:	:	:	:	ion 1938 and 1940. Also
	:	:	:	:	contributed funds.
	:	:	:	:	
Bitter Root Valley, Mont.,	:	:	111	:	Work to start early in
Ravalli and Missoula Counties	:	:	:	:	fiscal year 1940.
Supplemental storage, at	:1/	15,000	:	:	
Lake Como or elsewhere, for	:	:	:	:	
lands now irrigated in Bitter	:	:	:	:	
Valley.	:2/	15,000	:	:	
	:	:	:	:	
Cabinet Gorge, Idaho, Bonner	:	:	111	:	Report completed.
County: Determination of the	:	:	:	:	Authorized by Act of
feasibility of construction	:	:	:	:	Congress.
dam at Cabinet Gorge on Clark	:	:	:	:	
Fork for power development.	:2/	25,000	:	:	
	:	:	:	:	
Rathdrum Prairie, Idaho,	:	:	111	:	Report has been completed.
Kootenai County: Supplemental	:	:	:	:	Allocation from Interior
investigation to determine the	:	:	:	:	Department Appropriation
feasibility of irrigating	:	:	:	:	1938 for investigations.
Rathdrum Prairie area from the	:	:	:	:	
Spokane River.	:2/	5,000	:	:	
	:	:	:	:	
Spokane, Washington, Various	:	:	111	:	This investigation will
counties: Determination of the	:	:	:	:	be carried out partly in
best method of irrigating	:1/	20,000	:	:	connection with the
lands adjacent to the Columbia	:	:	:	:	economic surveys of the
Basin project.	:2/	20,000	:	:	Columbia Basin project.
	:	:	:	:	
Miscellaneous, Washington,	:	:	111	:	
Various counties:	:1/	10,000	:	112	
Reconnaissance in areas not	:	:	:	and	
specifically mentioned.	:2/	10,000	:	113	
	:	:	:	:	

1/ Interior Department Appropriation Act F.Y. 1940
 2/ Total appropriation or Allotments.

Canby, Oregon, Clackamas County	:	:	113	:	Determination of the
To determine the possibility	: <u>1/</u>	5,000	:	:	possibility of irrigating
of irrigating lands in the	:		:	:	area previously reported
vicinity of Canby, Oregon.	: <u>2/</u>	7,000	:	:	upon through the use of a
	:		:	:	sprinkler system. Field
	:		:	:	work and studies are in
	:		:	:	progress. Allocation from
	:		:	:	Inter. Dept. Appro. 1938
	:		:	:	and 1940.
	:		:	:	
Willamette Valley, Oregon,	:	:	113	:	Investigation in progress.
various counties: Recon-	:	:	:	:	Allocation from Interior
naissance to determine the	:	:	:	:	Department Appropriation
attitude of settlers toward	:		:	:	1938 for Investigations.
irrigation development.	: <u>2/</u>	1,000	:	:	
	:		:	:	
	:		:	:	
Medford, Oregon, Jackson	:	:	116	:	Report has been completed.
County: Determination of the	:	:	:	:	Allocations from Interior
feasibility of furnishing	:	:	:	:	Department Appropriations
supplemental water supply for	:		:	:	1938 and 1939 and State
irrigation in the vicinity of	:		:	:	Contribution.
Medford, Oregon.	: <u>2/</u>	15,400	:	:	
	:		:	:	
	:		:	:	
	:		:	:	
Talent, Oregon, Jackson County:	:	:	116	:	The investigation may
Determination of the feasi-	:	:	:	:	be undertaken in co-
bility of furnishing a supple-	: <u>1/</u>	15,000	:	:	operation with the State
mental water supply to the	:		:	:	of Oregon and local
lands of the Talent	:		:	:	interests.
Irrigation District	: <u>2/</u>	15,000	:	:	

1/ Interior Department Appropriation Act. F.Y. 1940.
2/ Total Appropriation or Allotments.

UNITED STATES DEPARTMENT OF AGRICULTURE
FLOOD CONTROL COORDINATING COMMITTEE.

Washington

September 18, 1939

MEMORANDUM NO. 51

MEMORANDUM FOR FIELD FLOOD CONTROL COORDINATING COMMITTEES:
(Through BAE, FS, and SCS.)

Subject: Standardization of Suspended-load Programs.

On February 25 and April 26, 1939, informal conferences of representatives of the Departments of War, Interior, and Agriculture, were held on the subject of suspended-load sampling. These conferences led to the recognition of a pressing need for improvement and standardization both of equipment and methods used in measuring the suspended-load carried by natural streams.

Wide variations were found to exist both in types of equipment and in methods of field and laboratory procedure as adopted by agencies concerned with suspended-load studies. These variations occur not only from agency to agency within a Department, but also within these agencies. As a consequence the results of the different investigations are not comparable, thus losing much of their ultimate value. In addition, some of the results are of questionable accuracy. It was therefore deemed highly desirable that steps be taken looking towards the standardization of equipment and the establishment of uniform techniques for this work. It was further recognized that recommendations for such standards should be made only after considerable study of the various techniques now in use and of experimental investigations of the various types of equipment.

Plans of Studies:

As a result of the discussions, it was agreed that it would be desirable to organize an inter-departmental committee and a cooperative project for intensive study of the problem. The objective of this project is to provide the basis for the establishment of standard practices in measuring the suspended load of natural streams. The primary functions of the project, involving both library and laboratory investigations, are:

(1) The compilation of a comprehensive illustrated report describing: (a) the various types of sampling equipment now in use; (b) field techniques, and (c) the laboratory practices. This report will discuss the advantages and disadvantages of each type of equipment and of each field and laboratory technique. Recommendations for standardization of field techniques will cover the most advisable procedure as to point or integrated sampling, number, location, and volume of samples, time of sampling and places at which they should be taken (this involves seasonable variations, flash floods and other variables). The standard laboratory practice recommended will cover the most feasible and expeditious technique for analysis of samples with the object of permitting mass analysis with a reasonable margin of error.

(2) An experimental laboratory investigation to determine the effectiveness and accuracy of the different types of sampling equipment for the purpose of recommending the type, or types, of sampler to be adopted as standard for all suspended-load studies.

Laboratory Set-up:

Investigations relative to this project are centralized at the Iowa Institute of Hydraulic Research, Iowa City, Iowa, under the supervision of Prof. E. W. Lane.

Investigations of a similar nature, under the auspices of the War Department, have been underway for some time. This fact, together with the ready availability of necessary equipment and well qualified supervision, will facilitate the investigations.

A full-time technical worker has been assigned to the project by each of the three cooperating Departments. At the request of the Flood Control Coordinating Committee, Mr. Vernon J. Palmer of the Flood Control Surveys, Soil Conservation Service, has been detailed to this work for the Department of Agriculture.

Information Desired from Field Coordinating Committees.

In order that complete information may be available for study of present practices within the Department, it is requested that the chairman of each Field Flood Control Coordinating Committee report on the work being done locally. This report should describe the sampling equipment and the field and laboratory techniques used in sufficient detail so that

the material can be evaluated adequately. Where the sampling equipment used is standard for some other organization its identification will be sufficient. If the sampling is performed by some agency outside the Department such as the Geological Survey, a statement to this effect will be sufficient.

This report should be mailed, in duplicate, on or before October 15. Mr. G. C. Dobson, Acting Chief, Sedimentation Division, Soil Conservation Service, Washington, D. C., has been designated to act as liaison representative for this Committee and to represent the Committee on the inter-departmental committee which has been established for the Standardization of Suspended-load programs.

FLOOD CONTROL COORDINATING COMMITTEE

Arthur C. Ringland

By

Arthur C. Ringland, Chairman.

UNITED STATES DEPARTMENT OF AGRICULTURE
FLOOD CONTROL COORDINATING COMMITTEE.

Washington

September 19, 1939

MEMORANDUM NO. 52

MEMORANDUM FOR FIELD FLOOD CONTROL COORDINATING COMMITTEES.
(Through BAE, FS, and SCS).

Subject: Department Shields for Flood Control Cars.

From time to time the field has requested clarification of the policy regarding the use and lettering of cars and trucks purchased from Flood Control funds. Administrative regulation #1834 requires all passenger cars to be marked in a union shield with the lettering, "U. S. Department of Agriculture." Trucks should be similarly marked. The regulation permits additional lettering to indicate the particular Bureau or activity to which the cars belong. For the present, however, no additional lettering should be applied, pending final determination of a desirable title, at which time you will be notified accordingly.

FLOOD CONTROL COORDINATING COMMITTEE

By Arthur C. Ringland
Arthur C. Ringland, Chairman

UNITED STATES DEPARTMENT OF AGRICULTURE
FLOOD CONTROL COORDINATING COMMITTEE
Washington

September 23, 1939

MEMORANDUM NO. 53

MEMORANDUM FOR FIELD FLOOD CONTROL COORDINATING COMMITTEES:
(Through B.A.E., F.S., and S.C.S.)

Subject: Attached Material on Conduct of Flood Surveys.

Herewith is a proposed sample plan for the conduct of flood control surveys developed by the Muskingum Survey Party for consideration of flood survey personnel.

In the proposed plan, an attempt is made to provide for full-time survey operations for an entire survey party throughout the year. In order to do this, the suggestion is made in the plan that a survey party carry on two surveys at the same time during part of the period. Under the proposed plan selected members of the party during the last stage of a survey would be engaged in preparation of the survey report, while the remainder of the party would be assigned to begin certain phases of work on another approved survey, for which a survey work outline had already been prepared by the field staff and approved by the Field Flood Control Committee concerned and the Washington Flood Control Coordinating Committee.

We recommend careful and critical review of this sample plan. Please send your comments on this plan through your regular Bureau channels as early as practicable.

FLOOD CONTROL COORDINATING COMMITTEE

By E. N. MUNNS
E. N. Munns
Acting Chairman

Attachment

Proposed Outline for Detailed Surveys

In any discussion of detailed surveys for flood control it is necessary to begin with reference to preliminary examinations. Since the procedure for making preliminary examinations is in itself a broad subject it will not be discussed here for the sake of brevity but certain assumptions must be made for the sake of clearness.

In the following proposed outline it is presumed that preliminary examinations have been made and that such information as is necessary for the initiation of detailed surveys is readily available. This will include designation of problem areas, a complete reconnaissance of flood damages, a general analysis of the climatic and hydrologic behavior, general information relative to physical features of the watershed such as topography, soils, land use, cropping practices, erosion conditions, etc., economic factors such as history of land ownership and tenure, census data, types of farming, AAA data, state and county land planning information etc. Also, climatic data, water supply papers, etc., topographic maps, aerial index photographs, soils or geologic maps should be available.

In the following outline an attempt is made to set forth clearly in a general way a working plan for the maintenance of smooth operations in prosecuting surveys by one survey party carrying parts of two surveys at the same time. For the sake of simplicity very few job details are mentioned. It is the purpose of this outline to provide a procedure flexible enough to allow the survey party leader sufficient leeway to make day to day adjustments as circumstances may require. For the sake of illustrating proportions an assumed period of 6 months is taken to

cover a watershed area of 1,000 square miles. Estimates for larger or smaller areas may be derived from this base. Units may vary but proportions should remain constant.

A. Reconnaissance. In order to begin a new survey intelligently the first step should be a reconnaissance by the senior representatives of the 3 bureaus. The purpose of this reconnaissance is to familiarize these 3 men with the actual facts in the field as well as with the information supplied by the preliminary examination in the form of printed material, tables, charts, maps, etc. During this reconnaissance notes should be taken for each tributary or problem area. Upon completion of the entire watershed a priority list should be made for the tributaries or problem areas involved. Some areas may be eliminated.

Aerial photographs necessary for detailed study of the problem areas should be ordered at this time. (Contact prints scale 4 inches to the mile should over-lap properly for stereoptic study. Enlarged photographs scale 8" to the mile are recommended for individual farm planning.)

Any replacement or additional items of equipment should be ordered during this period.

Personnel - Party Leader	<u>Bureau</u>
Clerk-Stenographer	SCS
Jr. Engineer Draftsman	SCS
Associate Forester	FS
Associate Economist	BAE

Time. 1/2 month for each tributary or problem area of 1,000 sq.mi.

B. Flood Damage and Sedimentation Surveys. Upon arriving at a priority rating for the tributaries involved detailed damage surveys should begin by the damage specialist, according to priorities.

Sedimentation studies should begin concurrently and continue in close order with the damage surveys.

Personnel - 1 Flood Damage Specialist BAE
 1 Sedimentation Specialist SCS

Time. 1 month for each area

Upon completion of their work on a sufficient number of units these 2 men may be released to another survey party or for preliminary examinations until required by this survey party.

C. Basic Investigations. Detailed studies of climatology and hydrology should begin as early as possible after the establishment of priorities for problem areas. The possibilities of reducing flood flows by small reservoir storage and any other structures should be explored sufficiently to estimate effects and approximate costs.

Studies of the soils characteristics and erosion conditions should begin at this stage. Also the extent of cover and conditions thereof should be appraised. Such information should be put in the form of working maps, charts and summaries for the use of the survey party.

Infiltration rate tests should be made as required on the various soils and the desired range of cover conditions. (It is assumed that some infiltration rate tests are made during the preliminary examination in a general way)

All available information relative to present and recommended land use, crop rotations, fertility and tillage practices, runoff retention and erosion control measures should be studied.

All available economic information referred to previously should be completely analyzed during this stage.

Personnel-	1 Hydrologist	SCS
	1 Assistant Hydrologist	SCS
	1 Engineer Draftsman	SCS
	1 Soils Scientist	SCS
	1 Ass't Engineer (Infiltration)	SCS
	1 Associate Conservationist	SCS
	1 Assistant Conservationist	SCS
	1 Assistant Forester	FS
	1 Ass't Economist (Farm Management)	BAE
	1 Junior Economist	BAE

Time- 1 month.

As soon as these activities are sufficiently under way the 3 senior representatives may assemble and submit the report on the old survey. Also headquarters may be moved if desirable.

D. Watershed Analysis. During this stage in the survey rather definite conclusions should be reached regarding the possibilities for flood control in a problem area. The findings of the basic investigations should be summarized and studied carefully. If the findings indicate that the survey should proceed the way should be made clear for planning remedial measures.

Personnel - Same as during C
Time - 1 month

E. Planning Remedial Measures. This work should begin with detailed conservation surveys by the soils scientist on the sample farms or blocks of land and followed immediately by economic surveys to determine the individual farm business management. As soon as the soils scientist and economist get a start the land planning crew should begin.

Upon completion of the field work the entire survey party should work together preparing the final plans including calculations of costs comparison with benefits anticipated. In other words all work of the survey should be completed except that of actually assembling the report.

Personnel - Same as C and D
Time - 1 month

At the close of this stage in the survey the hydrologist and his assistant, 1 draftsman, 2 economists, the assistant forester, the soils scientist and the engineer assigned to infiltration studies, and the 2 conservationists may be released to begin work in step C of the next survey.

F. Assembling Report. The senior representatives may then assemble the report on the first watershed and upon its completion proceed with the stenographer and draftsman to the second survey beginning with the summary of step C.

Submitted by:

Muskingum Survey Party,
Mt. Vernon, Ohio.

Remarks: The successful operation of the proposed work outline plan for carrying on 2 surveys with the same survey party depends largely upon the promptness of services rendered by the agencies involved including transportation facilities, equipment, aerial photographs, hydrologic and climatic data and economic information, etc. Early orders should insure timely service in all these instances.

The plan is flexible enough to allow for necessary adjustments in personnel and time according to problems involved and at the same time maintain a reasonably uniform work load continuously.

It is to be noted that in the event a negative conclusion is reached at any stage in a survey the personnel may be shifted to another survey quite readily.

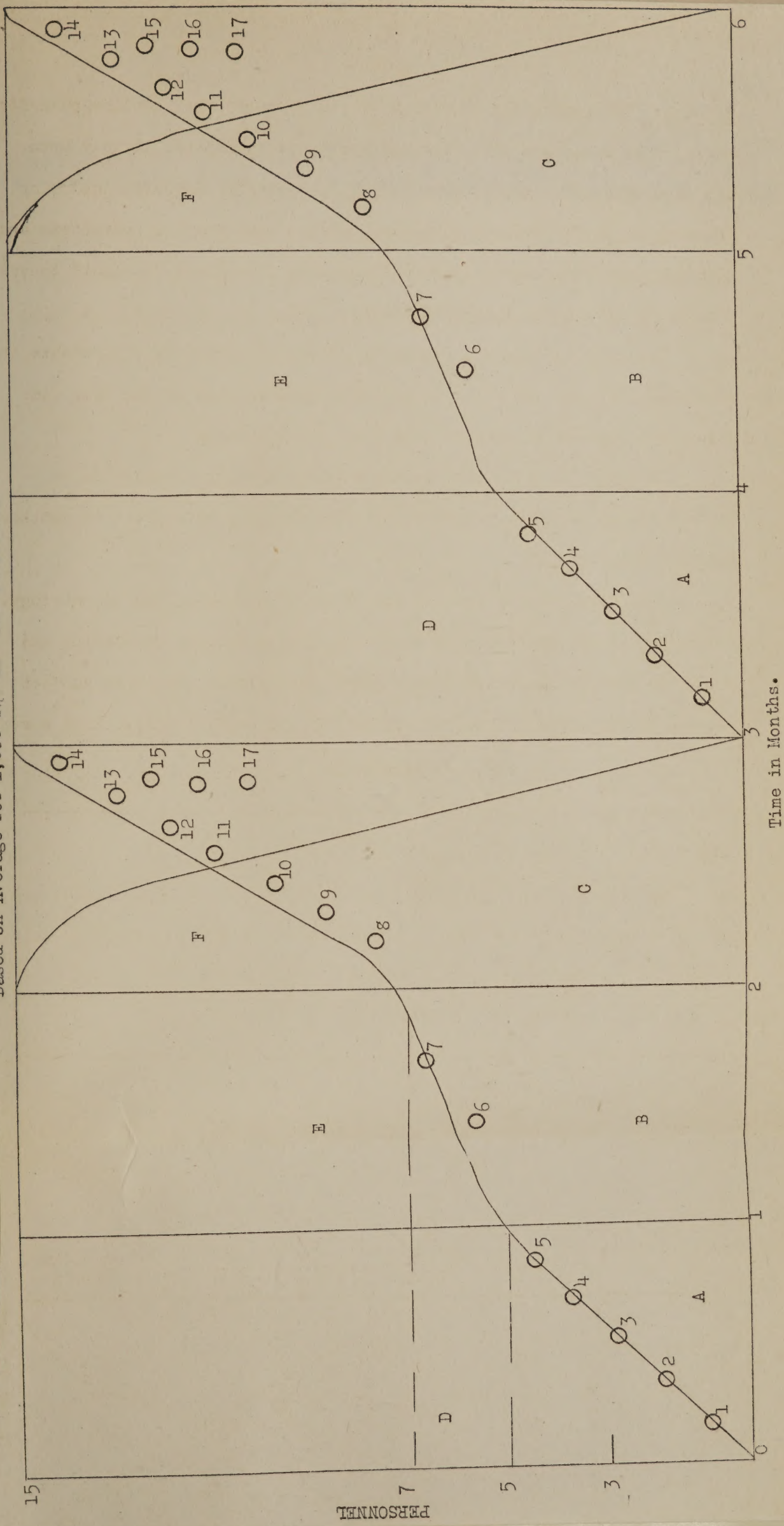
Additional specialists in the lines of hydrology and climatology, sedimentation and infiltration studies, erosion control evaluation and economics have not been mentioned. Such specialists should be subject to call by the survey party for assistance and counsel only. Each survey party should be adequately staffed to handle the actual details of the survey with a minimum of intermittent assistance.

With further reference to specialists it is believed that ultimately the flood damage and sedimentation specialists will be required as full time regular members of the survey party. It is to be emphasized that the survey party should be a complete unit able to stand on its own feet.

Wm. F. Simpson, Party Leader
Muskingum Survey,
Mt. Vernon, Ohio.

PROPOSED OUTLINE SUBMITTED BY MUSKINGUM SURVEY

Based on Average for 1,000 sq. mi. Sub Watersheds



<u>NUMBER</u>	<u>POSITION</u>	<u>BUREAU</u>
1	Party Leader	SCS or FS
2	Senior Representative	BAE
3	Senior Representative	FS or SCS
4	Clerk-Stenographer	SCS or FS
5	Engineering Draftsman	SCS or FS
6	Damage Specialist	BAE
7	Sedimentation Specialist	SCS
8	Hydrologist	SCS
9	Junior Agricultural Engineer	SCS
10	Junior Engineering Draftsman	SCS
11	Assistant Forester	FS
12	Assistant Economist	BAE
13	Junior Economist	BAE
14	Associate Soil Scientist	SCS
15	Assistant Engineer	SCS
16	Associate Conservationist	SCS
17	Assistant Conservationist	SCS

- A Reconnaissance
- B Flood Damage & Sedimentation Surveys
- C Basic Investigation
- D Watershed Analysis
- E Planning Remedial Measures
- F Assembling Report

